Search Notes

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
1	BRS	L1	33	soluble adj1 hardness	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 11:46	
2	BRS	L2	5	1 and fluoresc$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:01	
3	BRS	L3	28	1 not 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:05	

	Error Definition	Errors
1		0
2		0
3		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
4	BRS	L4	92090	hardness and water	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:05	
5	BRS	L5	4045	4 and indicator	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:06	
6	BRS	L6	7082	4 and (colorim$ or luminesc$ or fluoresc$)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:06	

	Error Definition	Errors
4		0
5		0
6		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
7	BRS	L7	292	6 and hardness.ti,ab.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:06	
8	BRS	L8	234	7 and fluoresc$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:07	
9	BRS	L9	1556	6 and water near3 hardness	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:07	

	Error Definition	Errors
7		0
8		0
9		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
10	BRS	L10	86	9 and 7	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:07	
11	BRS	L11	59	10 and 8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:12	
12	BRS	L12	5263	(hardness and water).ti,ab,clm. and (calcium or magnesium or ca or mg)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:13	

	Error Definition	Errors
10		0
11		0
12		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
13	BRS	L13	187	12 and fluoresc$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:20	
14	BRS	L14	407	436/79.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:20	
15	BRS	L15	139	14 and soluble	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:21	

	Error Definition	Errors
13		0
14		0
15		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments
16	BRS	L16	109	14 and fluoresc$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:21	
17	BRS	L17	55	15 and 16	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:21	
18	BRS	L18	6	17 and hardness	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/06/13 12:21	

	Error Definition	Errors
16		0
17		0
18		0

Search Notes

FILE 'CAPLUS' ENTERED AT 12:30:36 ON 13 JUN 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 13 Jun 2004 VOL 140 ISS 25
FILE LAST UPDATED: 11 Jun 2004 (20040611/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 2092-55-9 or 3147-14-6 or 3564-14-5 or 1058-92-0
REG1stRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L2 184 L1

REG1stRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L4 98 L3

REG1stRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L6 144 L5

REG1stRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L8 158 L7

L9 534 L8 OR L6 OR L4 OR L2

=> s l9 and hardness
170285 HARDNESS
L10 13 L9 AND HARDNESS

=> d l10 1-13

L10 ANSWER 1 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:601192 CAPLUS
DN 139:341302
TI Adsorption-Bonded Azo Reagents in Chemical Tests Based on the Principles of Precipitation Paper Chromatography
AU Amelin, V. G.; Tret'yakov, A. V.
CS Department of Chemistry and Ecology, Vladimir State University, Vladimir,

600000, Russia
SO Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii) (2003), 58(8), 740-747
CODEN: JACTE2; ISSN: 1061-9348
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:511977 CAPLUS
DN 139:57599
TI Method to ascertain whether soluble hardness is calcium or magnesium based
IN Dang, Xiaojun; Grattan, David A.; Link, Linda M.
PA USA
SO U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of U.S. Ser. No. 33,756.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003124731	A1	20030703	US 2002-209347	20020731
US 2003124730	A1	20030703	US 2001-33756	20011228
WO 2003058218	A1	20030717	WO 2002-US40380	20021218

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-33756 A2 20011228
US 2002-209347 A 20020731

L10 ANSWER 3 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:511976 CAPLUS
DN 139:57598
TI Fluorometric monitoring and control of soluble hardness of water used in

industrial water systems
IN Bailey, Bruce A.; Dang, Xiaojun; Grattan, David A.; Link, Linda
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003124730	A1	20030703	US 2001-33756	20011228
US 2003124731	A1	20030703	US 2002-209347	20020731
WO 2003058218	A1	20030717	WO 2002-US40380	20021218

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-33756 A2 20011228
US 2002-209347 A 20020731

L10 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:814436 CAPLUS
DN 137:303933
TI Indicator for calcium and magnesium
IN McKechnie, Malcolm Tom; Cornelius, Gay Joyce; Coke, Mark
PA Reckitt Benckiser (UK) Limited, UK
SO PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002084278	A1	20021024	WO 2002-GB1515	20020409

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,

UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
GB 2374411 A1 20021016 GB 2001-8926 20010410
EP 1377824 A1 20040107 EP 2002-722409 20020409
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRAI GB 2001-8926 A 20010410
WO 2002-GB1515 W 20020409
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:414583 CAPLUS
DN 135:24329
TI Indicators for determination of hardness
IN Nakajima, Junichi; Mizogami, Keita; Ukiana, Yuji
PA Miura Kogyo K. K., Japan; Miura Kenkyusho K. K.
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001153858	A2	20010608	JP 1999-333568	19991125
JP 2001201497	A2	20010727	JP 2000-356925	19991125
US 6599748	B1	20030729	US 2000-716434	20001121
CN 1298097	A	20010606	CN 2000-137041	20001125

PRAI JP 1999-333568 A3 19991125

L10 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:365051 CAPLUS
DN 132:352369
TI Test method for the determination of overall quality characteristics of water using indicator papers
AU Amelin, V. G.
CS Department of Chemistry and Ecology, Vladimir State University, Vladimir, 600026, Russia
SO Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii) (2000), 55(5), 480-485

CODEN: JACTE2; ISSN: 1061-9348
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:591244 CAPLUS
DN 125:251010
TI Binding of calcium ions to a-sulfonated fatty acid methyl esters in washing conditions
AU Satsuki, Teruhisa; Yoshimura, Haruo; Nagoh, Yumiko
CS Fabric-care Research Laboratories, Lion corporation, Tokyo, 132, Japan
SO World Surfactants Congress, 4th, Barcelona, June 3-7, 1996 (1996), Volume 2, 159-168 Publisher: Asociacion Espanola de Productores de Sustancias para Aplicaciones Tensioactivas, Barcelona, Spain.
CODEN: 63KCAH
DT Conference
LA English

L10 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:719503 CAPLUS
DN 123:92743
TI Colorimetric method and instrument for rapidly measuring hardness of boiler water
IN Zhang, Ji; Chen, Jinsheng
PA Tianjin Boiler Pressure Container Institute, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1087723	A	19940608	CN 1993-105857	19930527
PRAI CN 1993-105857		19930527		

L10 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:172935 CAPLUS
DN 120:172935
TI Flow injection determination of total water hardness in seawater by

using metal-ligand buffer and color-indicator
AU Imato, Toshihiko; Saitoh, Ko; Kawabata, Yuji; Ishibashi, Nobuhiko
CS Fac. Eng., Kyushu Univ., Fukuoka, Japan
SO Symposium on Salt, [Proceedings] (1993), 7th(Vol. 2), 563-8
CODEN: SSAPDY; ISSN: 0277-4267
DT Journal
LA English

L10 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1990:68787 CAPLUS
DN 112:68787
TI Indicators for estimation of hardness in brine used in membrane-type chlor-alkali cells
AU Venkataraman, K.; Rajan, T. Sushil Kumar; Gurumoorthy, K.
CS Mettur Chem. Ind. Corp. Ltd., Mettur Dam, 636 402, India
SO Indian Journal of Technology (1988), 26(11), 565-6
CODEN: IJOTA8; ISSN: 0019-5669
DT Journal
LA English

L10 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1982:100520 CAPLUS
DN 96:100520
TI Test kit for field analysis of plant tissue magnesium and calcium
IN Sardisco, John B.; Phillips, Carroll O.
PA Pennzoil Co., USA
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 4303610	A	19811201	US 1980-150710	19800519
PRAI US 1980-150710		19800519		

L10 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1976:21955 CAPLUS
DN 84:21955
TI Photometric test method for chelant residual of deficiency
IN Bockowski, Edmund J.; Stefanelli, Louis J.
PA Betz Laboratories, Inc., USA
SO U.S., 4 pp.

CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3895913	A	19750722	US 1974-503895	19740906
PRAI US 1974-503895		19740906		

L10 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1960:73303 CAPLUS
DN 54:73303
OREF 54:13940g-i,13941a
TI New trilonometric indicator of the Chromium-Dark Blue type
AU Mustafin, I. S.; Kashkovskaya, E. A.; Ivanova, A. N.
CS N. G. Chernyshevskii State Univ., Saratov
SO Zavodskaya Laboratoriya (1958), 24, 1060-1
CODEN: ZVDLAU; ISSN: 0321-4265
DT Journal
LA Unavailable

=> d l10 4-6, 8-10 ti,ab

L10 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Indicator for calcium and magnesium
AB The application relates to a compn. for detecting Calcium or Magnesium ions (i.e. water hardness) comprising a metal indicator dye selected from the group of Alizarin Red, Eriochrome Black, Calmagite, or Murexide, the indicator dye being impregnated in a sheet of a fibrous material.

L10 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Indicators for determination of hardness
AB The title indicators are composed of metal indicators(e.g., calmagite, EBT) and desensitizers, e.g., org. polybasic acids having $^{3}2$ carboxylic groups(e.g., Na polyacrylate).

L10 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Test method for the determination of overall quality characteristics of water using indicator papers
AB Test systems were proposed for the detn. of total hardness, acidity, alky., pH, total concn. of heavy metals, and active chlorine in natural,

industrial, and potable water by the length of the colored zone and color intensity of indicator papers or the test liq. after placing reactive papers in it. The ranges of the parameters to be detd. were as follows: 0.001-30mM for total hardness, 0-5mM for total acidity, 0-30mM for total alky., 5 × 10-8-5 × 10-4M for the total concns. of heavy metals, and 0.3-500 mg/L for active chlorine. The time of anal. was 10-15 min; the relative std. deviation of the results of anal. was no higher than 30%.

L10 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Colorimetric method and instrument for rapidly measuring hardness of boiler water

AB The hardness is measured by using a coloring agent and a std. color scale by preheating a colorimetric light source, injecting a water sample (usually 5 mL) into a sealed coloring agent container and turning the container several time for mixing, pouring the mixt. in a colorimetric cup and setting the cup at an appropriate position with respect to the light source, and detg. the hardness by comparing with the std. color scale. The coloring agent consists 30-80% of a pH buffer soln. (sodium tetraborate, NaH2PO4, Na2HPO4, and Tris) and 20-70% metal ion indicator (Chrome blue black, Chrome blue K, or Calmagite), and the std. color scale is prepd. from mixts. contg. 10-90% Co salt and 10-90% Cu salt equal to 0.00, 0.01, 0.02, 0.03, 0.04, 0.05 mequiv/L. The instrument includes a colorimetric light source lamp, lamp box, std. color bottle and colorimetric cup.

L10 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Flow injection determination of total water hardness in seawater by using metal-ligand buffer and color-indicator

AB Flow injection detn. of total water hardness (sum of Ca2+ and Mg2+ ion concns.) is proposed, using the reaction of the sample with a metal-ligand buffer soln. contg. calmagite as an indicator. Seawater injected into a stream of water was merged with a stream of 0.01 M EDTA soln. (pH 9.5); the mixed stream was merged with a Mg-nitrilotriacetic acid buffer soln. contg. calmagite. The absorbance change of the calmagite-Mg complex at 535 nm was monitored. Approx. 60 samples/h can be detd. by the proposed method. Anal. results obtained were in good agreement with those from the conventional chelatometric titrn. method.

L10 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Indicators for estimation of hardness in brine used in membrane-type chlor-alkali cells

AB Three indicators are suggested for use in the quality control of chem.

purified brine and ion-exchange treated brine used in membrane-type electrolyzers. The methods are simple enough to be adopted on a routine basis and the results reliable. The detection limits of the three indicators were detd. Calmagite and Patton and Reeder's indicator are suitable for quality control of chem. purified brine. Acid Aliyarin Black can be used for quality control of brine after ion-exchange treatment.

=> s l10 and fluoresc?
385284 FLUORESC?
L11 2 L10 AND FLUORESC?

=> d 1 2

L11 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:511977 CAPLUS
DN 139:57599
TI Method to ascertain whether soluble hardness is calcium or magnesium based
IN Dang, Xiaojun; Grattan, David A.; Link, Linda M.
PA USA
SO U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of U.S. Ser. No. 33,756.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003124731	A1	20030703	US 2002-209347	20020731
US 2003124730	A1	20030703	US 2001-33756	20011228
WO 2003058218	A1	20030717	WO 2002-US40380	20021218

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-33756 A2 20011228
US 2002-209347 A 20020731

L11 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:511976 CAPLUS
DN 139:57598
TI Fluorometric monitoring and control of soluble hardness of water used in industrial water systems
IN Bailey, Bruce A.; Dang, Xiaojun; Grattan, David A.; Link, Linda
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003124730	A1	20030703	US 2001-33756	20011228
US 2003124731	A1	20030703	US 2002-209347	20020731
WO 2003058218	A1	20030717	WO 2002-US40380	20021218

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-33756 A2 20011228
US 2002-209347 A 20020731

=> d l10 4-6, 8-10

L10 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:814436 CAPLUS
DN 137:303933
TI Indicator for calcium and magnesium
IN McKechnie, Malcolm Tom; Cornelius, Gay Joyce; Coke, Mark
PA Reckitt Benckiser (UK) Limited, UK
SO PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI WO 2002084278 A1 20021024 WO 2002-GB1515 20020409
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
GB 2374411 A1 20021016 GB 2001-8926 20010410
EP 1377824 A1 20040107 EP 2002-722409 20020409
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRAI GB 2001-8926 A 20010410
WO 2002-GB1515 W 20020409
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:414583 CAPLUS
DN 135:24329
TI Indicators for determination of hardness
IN Nakajima, Junichi; Mizogami, Keita; Ukiana, Yuji
PA Miura Kogyo K. K., Japan; Miura Kenkyusho K. K.
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001153858	A2	20010608	JP 1999-333568	19991125
JP 2001201497	A2	20010727	JP 2000-356925	19991125
US 6599748	B1	20030729	US 2000-716434	20001121
CN 1298097	A	20010606	CN 2000-137041	20001125

PRAI JP 1999-333568 A3 19991125

L10 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:365051 CAPLUS
DN 132:352369
TI Test method for the determination of overall quality characteristics of

water using indicator papers
AU Amelin, V. G.
CS Department of Chemistry and Ecology, Vladimir State University, Vladimir, 600026, Russia
SO Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii) (2000), 55(5), 480-485
CODEN: JACTE2; ISSN: 1061-9348
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:719503 CAPLUS
DN 123:92743
TI Colorimetric method and instrument for rapidly measuring hardness of boiler water
IN Zhang, Ji; Chen, Jinsheng
PA Tianjin Boiler Pressure Container Institute, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1087723	A	19940608	CN 1993-105857	19930527
PRAI CN 1993-105857		19930527		

L10 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:172935 CAPLUS
DN 120:172935
TI Flow injection determination of total water hardness in seawater by using metal-ligand buffer and color-indicator
AU Imato, Toshihiko; Saitoh, Ko; Kawabata, Yuji; Ishibashi, Nobuhiko
CS Fac. Eng., Kyushu Univ., Fukuoka, Japan
SO Symposium on Salt, [Proceedings] (1993), 7th(Vol. 2), 563-8
CODEN: SSAPDY; ISSN: 0277-4267
DT Journal
LA English

L10 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1990:68787 CAPLUS
DN 112:68787
TI Indicators for estimation of hardness in brine used in membrane-type chlor-alkali cells
AU Venkataraman, K.; Rajan, T. Sushil Kumar; Gurumoorthy, K.
CS Mettur Chem. Ind. Corp. Ltd., Mettur Dam, 636 402, India
SO Indian Journal of Technology (1988), 26(11), 565-6
CODEN: IJOTA8; ISSN: 0019-5669
DT Journal
LA English

=> d l10 10 full
'FULL' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
SCAN must be entered on the same line as the DISPLAY,
e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, IPC, and NCL

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.
ENTER DISPLAY FORMAT (BIB):all

L10 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1990:68787 CAPLUS
DN 112:68787
ED Entered STN: 17 Feb 1990
TI Indicators for estimation of hardness in brine used in membrane-type chlor-alkali cells
AU Venkataraman, K.; Rajan, T. Sushil Kumar; Gurumoorthy, K.
CS Mettur Chem. Ind. Corp. Ltd., Mettur Dam, 636 402, India
SO Indian Journal of Technology (1988), 26(11), 565-6
CODEN: IJOTA8; ISSN: 0019-5669
DT Journal
LA English
CC 79-3 (Inorganic Analytical Chemistry)
AB Three indicators are suggested for use in the quality control of chem.

purified brine and ion-exchange treated brine used in membrane-type electrolyzers. The methods are simple enough to be adopted on a routine basis and the results reliable. The detection limits of the three indicators were detd. Calmagite and Patton and Reeder's indicator are suitable for quality control of chem. purified brine. Acid Aliyarin Black can be used for quality control of brine after ion-exchange treatment.

ST brine analysis hardness metallochromic indicator; hardness detn brine metallochromic indicator; calmagite indicator hardness detn brine; Patton Reeder indicator hardness detn brine; acid Aliyarin Black indicator hardness detn

IT Brines
(hardness detn. in, for membrane chlor-alkali cells, metallochromic indicators for)

IT Electrolytic cells
(diaphragm, chlor-alkali, metallochromic indicators for hardness detn. in brine for)

IT Indicators
(metallochromic, for hardness detn. in brine in membrane chlor-alkali cells)

IT 7439-95-4, Magnesium, analysis 7440-70-2, Calcium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in brine in membrane chlor-alkali cells, metallochromic indicators for)

IT 3147-14-6, Calmagite 3258-74-0 3737-95-9, Patton and Reeder's indicator
RL: ANST (Analytical study)
(metallochromic indicator, in detn. of hardness in brine in membrane chlor-alkali cells)

=> d l10 9 all

L10 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:172935 CAPLUS
DN 120:172935
ED Entered STN: 02 Apr 1994
TI Flow injection determination of total water hardness in seawater by using metal-ligand buffer and color-indicator
AU Imato, Toshihiko; Saitoh, Ko; Kawabata, Yuji; Ishibashi, Nobuhiko
CS Fac. Eng., Kyushu Univ., Fukuoka, Japan
SO Symposium on Salt, [Proceedings] (1993), 7th(Vol. 2), 563-8
CODEN: SSAPDY; ISSN: 0277-4267
DT Journal
LA English
CC 61-3 (Water)

Section cross-reference(s): 79

AB Flow injection detn. of total water hardness (sum of Ca2+ and Mg2+ ion concns.) is proposed, using the reaction of the sample with a metal-ligand buffer soln. contg. calmagite as an indicator. Seawater injected into a stream of water was merged with a stream of 0.01 M EDTA soln. (pH 9.5); the mixed stream was merged with a Mg-nitrilotriacetic acid buffer soln. contg. calmagite. The absorbance change of the calmagite-Mg complex at 535 nm was monitored. Approx. 60 samples/h can be detd. by the proposed method. Anal. results obtained were in good agreement with those from the conventional chelatometric titrn. method.

ST flow injection hardness detn seawater; metal ligand buffer color indicator analysis; EDTA magnesium nitrilotriacetic acid buffer analysis; calmagite color indicator seawater hardness detn

IT 139-13-9D, Nitrilotriacetic acid, magnesium complex with
RL: ANST (Analytical study)
(buffer soln. of EDTA and, for detn. of hardness in seawater by flow injection with calmagite color indicator)

IT 60-00-4, EDTA, uses
RL: USES (Uses)
(buffer soln. of magnesium nitrilotriacetic acid and, for detn. of hardness in seawater by flow injection with calmagite color indicator)

IT 3147-14-6, Calmagite
RL: ANST (Analytical study)
(color indicator, for detn. of hardness in seawater by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln.)

IT 7439-95-4, Magnesium, analysis
RL: ANST (Analytical study)
(detn. of hardness as calcium and, in seawater, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator)

IT 7440-70-2, Calcium, analysis
RL: ANST (Analytical study)
(detn. of hardness as magnesium and, in seawater, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator)

IT 7732-18-5, Water, analysis
RL: ANST (Analytical study)
(hardness as calcium and magnesium detn. in sea-, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator)

=> d l10 8 all

L10 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:719503 CAPLUS
DN 123:92743
ED Entered STN: 04 Aug 1995
TI Colorimetric method and instrument for rapidly measuring hardness of boiler water
IN Zhang, Ji; Chen, Jinsheng
PA Tianjin Boiler Pressure Container Institute, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
IC ICM G01N031-22
ICS G01N021-77
CC 61-3 (Water)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1087723	A	19940608	CN 1993-105857	19930527

PRAI CN 1993-105857 19930527

AB The hardness is measured by using a coloring agent and a std. color scale by preheating a colorimetric light source, injecting a water sample (usually 5 mL) into a sealed coloring agent container and turning the container several time for mixing, pouring the mixt. in a colorimetric cup and setting the cup at an appropriate position with respect to the light source, and detg. the hardness by comparing with the std. color scale. The coloring agent consists 30-80% of a pH buffer soln. (sodium tetraborate, NaH2PO4, Na2HPO4, and Tris) and 20-70% metal ion indicator (Chrome blue black, Chrome blue K, or Calmagite), and the std. color scale is prepd. from mixts. contg. 10-90% Co salt and 10-90% Cu salt equal to 0.00, 0.01, 0.02, 0.03, 0.04, 0.05 mequiv/L. The instrument includes a colorimetric light source lamp, lamp box, std. color bottle and colorimetric cup.

ST colorimetric boiler water hardness detn
IT Colorimetry
(colorimetric method and instrument for rapidly measuring hardness of boiler water)
IT 77-86-1, Tris (buffer) 1330-43-4, Sodium tetraborate 2538-85-4, Chrome blue black 3147-14-6, Calmagite 3270-25-5 7558-79-4, Disodium hydrogen phosphate 7558-80-7, Sodium dihydrogen phosphate
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(buffer soln. for colorimetric detn. of hardness of boiler water)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(colorimetric method and instrument for rapidly measuring

hardness of boiler water)
IT 7439-95-4, Magnesium, analysis 7440-70-2, Calcium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(colorimetric method and instrument for rapidly measuring hardness of boiler water)
IT 7440-48-4D, Cobalt, compds., slats 7440-50-8D, Copper, compds., slats
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(std. color solns. for colorimetric detn. of hardness of boiler water)

=> d l10 6 all

L10 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:365051 CAPLUS
DN 132:352369
ED Entered STN: 01 Jun 2000
TI Test method for the determination of overall quality characteristics of water using indicator papers
AU Amelin, V. G.
CS Department of Chemistry and Ecology, Vladimir State University, Vladimir, 600026, Russia
SO Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii) (2000), 55(5), 480-485
CODEN: JACTE2; ISSN: 1061-9348
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
CC 61-3 (Water)
Section cross-reference(s): 79
AB Test systems were proposed for the detn. of total hardness, acidity, alky., pH, total concn. of heavy metals, and active chlorine in natural, industrial, and potable water by the length of the colored zone and color intensity of indicator papers or the test liq. after placing reactive papers in it. The ranges of the parameters to be detd. were as follows: 0.001-30mM for total hardness, 0-5mM for total acidity, 0-30mM for total alky., 5 × 10-8-5 × 10-4M for the total concns. of heavy metals, and 0.3-500 mg/L for active chlorine. The time of anal. was 10-15 min; the relative std. deviation of the results of anal. was no higher than 30%.
ST indicator paper water quality detn
IT Alkalinity
(detn. of; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT Heavy metals

RL: ANT (Analyte); ANST (Analytical study)
(detn. of; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT Drinking waters
Waters
(indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT Paper
(indicator; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT 7782-50-5, Chlorine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(active, detn. of; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT 60-10-6 76-59-5 76-61-9 85-85-8 115-39-9 119-93-7 143-74-8 1058-92-0 1787-61-7 2538-85-4 7681-11-0, Potassium iodide (KI), uses 9005-25-8, Starch, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(anal. reagent; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters)
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Amelin, V; Zh Anal Khim 1998, V53(9), P958
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(3) Anon; Test Kits Aquamerck, Aquaquant, Microquant for Mobile Analyse 1994
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(10) Lur'e, Y; Analytical Chemistry of Industrial Waste Waters 1984
(11) Ostrovskaya, V; Reactive Indicator Kits for Multielement Water Testing 1992
(12) Ostrovskaya, V; Reaktivnye indikatornye sredstva dlya mnogoelementnogo testirovaniya vody 1992
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(15) Pantaler, R; Zh Anal Khim 1997, V52(6), P643
(16) Roman, L; PR 89539 1986
(17) Rupe, C; US 4092115 1978 CAPLUS

(18) Sandorne, E; HU 170775 1978
(19) Schmitt, D; US 3843325 1974 CAPLUS
(20) Siepak, J; PL 141087 1987
(21) Siepak, J; PL 141088 1987

=>

Search Strategy
(CAN)(120:172935)

120:172935
Flow injection determination of total water hardness in seawater by using metal-ligand buffer and color-indicator.
Imato, Toshihiko; Saitoh, Ko; Kawabata, Yuji; Ishibashi, Nobuhiko (Fac. Eng., Kyushu Univ., Fukuoka, Japan). Symp. Salt, [Proc.], 7th(Vol. 2), 563-8 (English) 1993. CODEN: SSAPDY. ISSN: 0277-4267. DOCUMENT TYPE: Journal CA Section: 61 (Water) Section cross-reference(s): 79
Flow injection detn. of total water hardness (sum of Ca^{2+} and Mg^{2+} ion concns.) is proposed, using the reaction of the sample with a metal-ligand buffer soln. contg. calmagite as an indicator. Seawater injected into a stream of water was merged with a stream of 0.01 M EDTA soln. (pH 9.5); the mixed stream was merged with a Mg-nitrilotriacetic acid buffer soln. contg. calmagite. The absorbance change of the calmagite-Mg complex at 535 nm was monitored. Approx. 60 samples/h can be detd. by the proposed method. Anal. results obtained were in good agreement with those from the conventional chelatometric titrn. method.

Keywords

flow injection hardness detn seawater
metal ligand buffer color indicator analysis
EDTA magnesium nitrilotriacetic acid buffer analysis
calmagite color indicator seawater hardness detn

Index Entries

139-13-9, magnesium complex with
buffer soln. of EDTA and, for detn. of hardness in seawater by flow injection with calmagite color indicator
60-00-4, uses
buffer soln. of magnesium nitrilotriacetic acid and, for detn. of hardness in seawater by flow injection with calmagite color indicator
3147-14-6
color indicator, for detn. of hardness in seawater by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln.
7439-95-4, analysis
detn. of hardness as calcium and, in seawater, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator
7440-70-2, analysis
detn. of hardness as magnesium and, in seawater, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator
7732-18-5, analysis
hardness as calcium and magnesium detn. in sea-, by flow injection with EDTA-magnesium nitrilotriacetic acid buffer soln. and calmagite color indicator

Search Strategy
(CAN)(132:352369)

132:352369
Test method for the determination of overall quality characteristics of water using indicator papers.
Amelin, V. G. (Department of Chemistry and Ecology, Vladimir State University, Vladimir 600026, Russia). Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii), 55(5), 480-485 (English) 2000 MAIK Nauka/Interperiodica Publishing. CODEN: JACTE2. ISSN: 1061-9348. DOCUMENT TYPE: Journal
CA Section: 61 (Water) Section cross-reference(s): 79
Test systems were proposed for the detn. of total hardness, acidity, alky., pH, total concn. of heavy metals, and active chlorine in natural, industrial, and potable water by the length of the colored zone and color intensity of indicator papers or the test liq. after placing reactive papers in it. The ranges of the parameters to be detd. were as follows: 0.001-30mM for total hardness, 0-5mM for total acidity, 0-30mM for total alky., 5×10^{-8}-5×10^{-4}M for the total concns. of heavy metals, and 0.3-500 mg/L for active chlorine. The time of anal. was 10-15 min; the relative std. deviation of the results of anal. was no higher than 30%.

Keywords

indicator paper water quality detn

Index Entries

Alkalinity
Heavy metals
  detn. of; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters
Drinking waters
Waters
  indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters
Paper
  indicator; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters
7782-50-5, analysis
  active, detn. of; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters
60-10-6
76-59-5
76-61-9
85-85-8
115-39-9
119-93-7
143-74-8
1058-92-0
1787-61-7

2538-85-4
7681-11-0, uses
9005-25-8, uses
anal. reagent; indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters
7732-18-5, analysis
indicator papers for detn. of overall quality characteristics of natural, industrial, and potable waters

Search Strategy
(CAN)(112:68787)

112:68787
Indicators for estimation of hardness in brine used in membrane-type chlor-alkali cells.
Venkataraman, K.; Rajan, T. Sushil Kumar; Gurumoorthy, K. (Mettur Chem. Ind. Corp. Ltd., Mettur Dam 636 402, India). Indian J. Technol., 26(11), 565-6 (English) 1988. CODEN: IJOTA8. ISSN: 0019-5669. DOCUMENT TYPE: Journal
CA Section: 79 (Inorganic Analytical Chemistry)
Three indicators are suggested for use in the quality control of chem. purified brine and ion-exchange treated brine used in membrane-type electrolyzers. The methods are simple enough to be adopted on a routine basis and the results reliable. The detection limits of the three indicators were detd. Calmagite and Patton and Reeder's indicator are suitable for quality control of chem. purified brine. Acid Aliyarin Black can be used for quality control of brine after ion-exchange treatment.

Keywords

brine analysis hardness metallochromic indicator
hardness detn brine metallochromic indicator
calmagite indicator hardness detn brine
Patton Reeder indicator hardness detn brine
acid Aliyarin Black indicator hardness detn

Index Entries

Search Strategy
(CAN)(123:92743)

123:92743
Colorimetric method and instrument for rapidly measuring hardness of boiler water.
Zhang, Ji; Chen, Jinsheng (Tianjin Boiler Pressure Container Institute, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1087723 A 8 Jun 1994, 11 pp. (People's Republic of China). CODEN: CNXXEV. CLASS: ICM: G01N031-22. ICS: G01N021-77. APPLICATION: CN 93-105857 27 May 1993. DOCUMENT TYPE: Patent CA Section: 61 (Water)
The hardness is measured by using a coloring agent and a std. color scale by preheating a colorimetric light source, injecting a water sample (usually 5 mL) into a sealed coloring agent container and turning the container several time for mixing, pouring the mixt. in a colorimetric cup and setting the cup at an appropriate position with respect to the light source, and detg. the hardness by comparing with the std. color scale. The coloring agent consists 30-80% of a pH buffer soln. (sodium tetraborate, NaH_2PO_4, Na_2HPO_4, and Tris) and 20-70% metal ion indicator (Chrome blue black, Chrome blue K, or Calmagite), and the std. color scale is prepd. from mixts. contg. 10-90% Co salt and 10-90% Cu salt equal to 0.00, 0.01, 0.02, 0.03, 0.04, 0.05 mequiv/L. The instrument includes a colorimetric light source lamp, lamp box, std. color bottle and colorimetric cup.

Keywords

colorimetric boiler water hardness detn

Index Entries

Colorimetry
colorimetric method and instrument for rapidly measuring hardness of boiler water
77-86-1
1330-43-4
2538-85-4
3147-14-6
3270-25-5
7558-79-4
7558-80-7
buffer soln. for colorimetric detn. of hardness of boiler water
7732-18-5, analysis
7439-95-4, analysis
7440-70-2, analysis
colorimetric method and instrument for rapidly measuring hardness of boiler water
7440-48-4, compds., slats
7440-50-8, compds., slats
std. color solns. for colorimetric detn. of hardness of boiler water